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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/706,060	11/03/2000	Norman C. Brackett	55,112 (1850)	6659

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EXAMINER

STEFANON, JUSTIN

ART UNIT

PAPER NUMBER

3682

DATE MAILED: 10/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/706,060

Applicant(s)

BRACKETT, NORMAN C.

Examiner

Justin Stefanon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 2-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 2,3,5-7, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by US Pat. No. 4,860,611 to Flanagan.

Flanagan discloses a stiff metallic hub 3 for an energy storage device having a flywheel assembly with a central core in tight interference fit with a rotary shaft 4, an outer rim section in tight interference fit with a composite fiber rim 7 and a substantially planar web section, comprising four spokes, integrally formed to the central core and the outer rim section. During a start-up operation, a flywheel must accelerate from zero, therefore any flywheel inherently has a design operating speed below all of its critical velocities. The flywheel of Flanagan is aluminum. Since the flywheel achieves a speed above a critical velocity, it inherently will pass through a design operating speed one third of that critical velocity. At high operating speeds the rim section is capable of deforming in a radial direction to maintain a tight interference fit with the composite rim. The rim achieves a speed of 29,000 rpm, therefore a design operating speed of the flywheel assembly is about 22,500 rpm. The outer rim includes a balancing rail, the inner wall of the rim, for balancing the flywheel, as described in Column 4, lines 20-22.

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3. Claims 2,4, and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by US Pat. No. 5,816,114 to Gregoire et al.

Gregoire discloses a stiff hub 22, which may be metallic as disclosed in Column 4, lines 38-39, for an energy storage device having a flywheel assembly with a central core 26 in tight interference fit with a rotary shaft 12, an outer rim section 32 in tight interference fit with a composite fiber rim 36 and a web section 28 integrally formed to the central core and the outer rim section, which is substantially planar in use. During a start-up operation, a flywheel must accelerate from zero, therefore any flywheel inherently has a design operating speed below all of its critical velocities. The web section is circumferentially continuous as seen in Figure 1. At high operating speeds the rim section is capable of deforming in a radial direction to maintain a tight interference fit with the composite rim. The rim achieves a speed of 101,000 rpm, therefore a design operating speed of the flywheel assembly is about 22,500 rpm.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gregoire et al.

The dimensions given in the claims depend upon the overall dimensions of the flywheel system as a whole. By changing the dimensions of the flywheel of Gregoire,

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an engineer would modify the dimensions of the central core, the outer rim section, and the web section accordingly. It would have been obvious to one skilled in the art at the time the invention was made to change the size of the flywheel and hub of Gregoire to fit in a smaller space, or to store more energy. The rotary shaft 12 is supported by mechanical bearings 14.

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gregoire et al. in view of Bakholdin et al.

Gregoire et al. disclose the subject matter of claim 2, as discussed above, but do not disclose the use of magnetic bearings. Bakholdin et al. utilize magnetic bearings to support a flywheel shaft. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the shaft of Gregoire with magnetic bearings since Gregoire teaches that it is known in the art to provide magnetic bearings in high-speed flywheel applications.

7. Claims 2,3,4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,634,381 to Thoolen in view of US Patent No. 5,012,694 to McGrath.

Thoolen discloses a stiff hub 6 for an energy storage device having a flywheel assembly with a central core 26 in tight interference fit with a rotary shaft 2, an outer rim section 10 in tight interference fit with a composite fiber rim 4 and a circumferentially continuous web section 14 integrally formed to the central core and the outer rim section. During a start-up operation, a flywheel must accelerate from zero, therefore any flywheel inherently has a design operating speed below all of its critical velocities.

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Thoolen is silent on the material used for the hub, but states that the arrangement is similar to that of McGrath. McGrath discloses a stiff metallic hub 22 comprised of steel or aluminum. It would have been obvious to one of skill in the art at the time the invention was made to construct the hub of Thoolen of steel or aluminum as shown by McGrath, since Thoolen states similar construction to McGrath. Thoolen discloses an axial stop, which interfaces with part 20, and prevents the composite rim 4 from falling off the outer rim 10 during high-speed operation.

Response to Arguments

8. Applicant's arguments filed July 29, 2002 have been fully considered but they are not persuasive. In response to applicant's argument that the prior art does not teach a critical velocity above design operating speed, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). Any of the prior art flywheels may selectively be operated for energy storage at a speed lower than a critical velocity of the flywheel system, thereby satisfying the claimed limitation.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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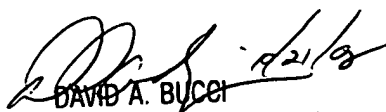
§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin Stefanon whose telephone number is 703-305-1945. The examiner can normally be reached on Monday - Friday 6 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Bucci can be reached on 703-308-3668. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.


DAVID A. BUCCI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

js
October 18, 2002